

CLAIMS

I claim

1. A method for preparing an etchant comprising tetramethylammonium hydroxide, dissolved silicate ions, and water, wherein a liquid source of dissolved silicate ions is mixed with tetramethylammonium hydroxide and water.
2. The method of claim 1, wherein said liquid source of dissolved silicate ions is a colloidal suspension of SiO_2 .
3. The method of claim 2, wherein said etchant is heated to a temperature substantially above room temperature for the purpose of causing said colloidal suspension of SiO_2 to dissolve.
4. The method of claim 1 further including addition of an oxidizer into said etchant at a time later than ten minutes following immersion of a sample comprised of silicon in said etchant.
5. The method of claim 4 wherein said oxidizer is ammonium peroxydisulfate.
6. The method of claim 4 wherein said oxidizer is obtained from a liquid source of oxidizer.
7. The method of claim 6 wherein said liquid source of oxidizer is a solution of ammonium peroxydisulfate.

8. The method of claim 4 wherein a quantity of TMAH is added to said TMAH etchant at a time later than ten minutes following the beginning of the process of etching a sample comprised of silicon.
9. The method of claim 8, wherein said quantity of TMAH is the quantity required to maintain the pH of said TMAH etchant at substantially the same pH as the pH of said TMAH etchant before the addition of said oxidizer and said quantity of TMAH.
10. A method for etching silicon with a TMAH etchant comprising TMAH and water wherein an oxidizer obtained from a liquid source of oxidizer is added to said TMAH etchant at a time later than ten minutes following the beginning of the process of etching a sample comprised of silicon.
11. The method of claim 10 wherein said liquid source of oxidizer is a solution of ammonium peroxydisulfate in water.
12. The method of claim 10 wherein a quantity of TMAH is added to said TMAH etchant at a time later than ten minutes following the beginning of the process of etching a sample comprised of silicon.
13. The method of claim 12, wherein said quantity of TMAH is the quantity required to maintain the pH of said TMAH etchant at substantially the same pH as the pH of said TMAH etchant before the addition of said oxidizer and said quantity of TMAH.